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Post-positivist, critical realism: philosophy, methodology and method for nursing research

Abstract

Background: Healthcare research acknowledges a range of paradigms. This article asserts that there is a place for post-positivist research for the nursing profession, particularly through critical realist methodologies. There are limited examples of this type of research and this may discourage nurses from considering it as a viable option.

Aims: It will 1) provide a detailed overview of Bhaskar's critical realism and 2) illustrate nursing research methods with published examples.

Discussion: Bhaskar's critical realist methodology is explained and three main research methods are illustrated: critical realist evaluation, action research and ethnography.

Conclusion: Post-positivism negotiates some of the conflict and differences between positivism and interpretivism. It offers a variety of methodological choices for nurses who do not wish to align themselves strictly with facts, cause-effect and proving hypotheses or with only participant perspectives and experiences. Bhaskar's critical realist principles may be used to study complex and open systems such as those of teams and organisations, public health interventions and social situations; but particularly the complexities of nursing practice, service delivery and design.

Keywords:

Post-positivism; research philosophy; critical realism; research methods; research methodology; research design

Post-positivist, critical realism: philosophy, methodology and method for nursing research

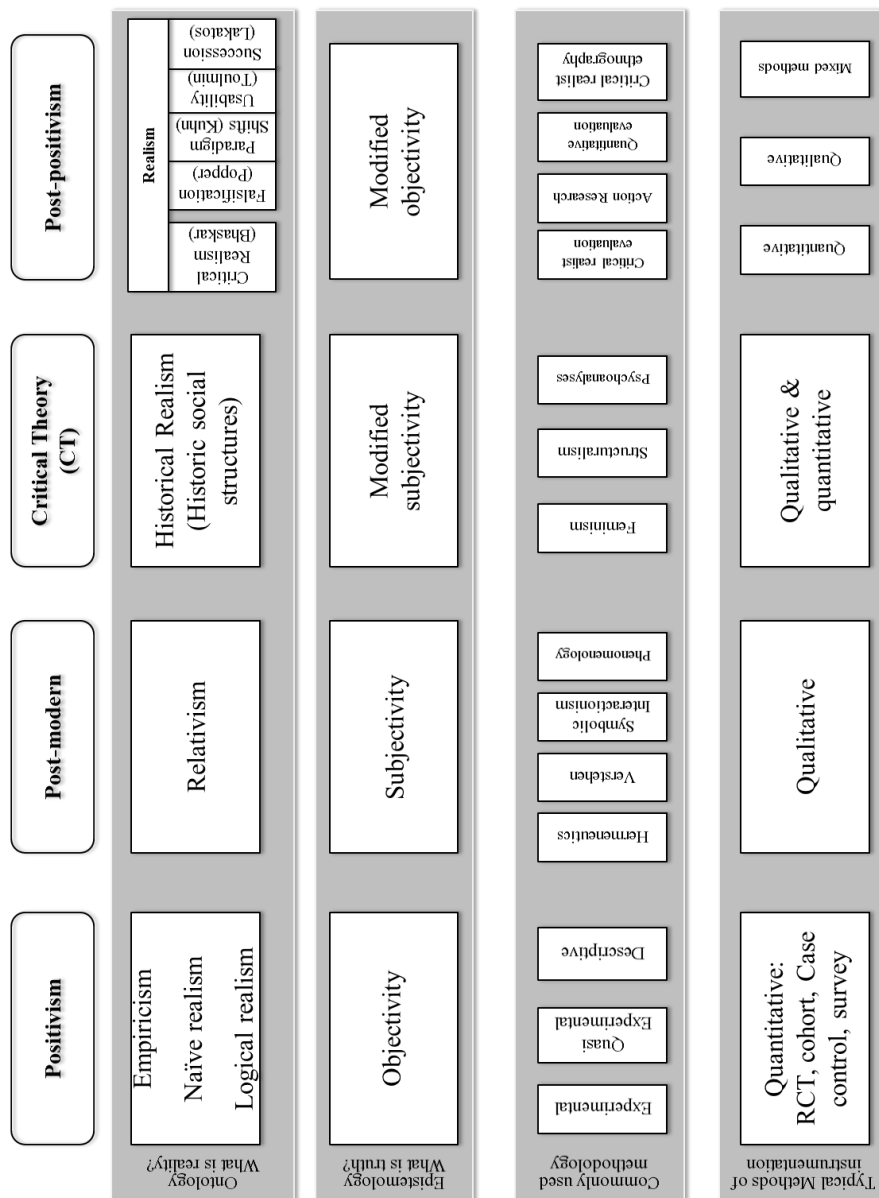
Introduction

There are four commonly referenced philosophical paradigms relevant to nursing research. This paper focuses on *post-positivism* (PP) and Bhaskar's (1998) *critical realism* (CR) as one of the most commonly referenced CR philosophers in nursing research (Porter & Ryan, 2006; Porter, 2003). This is followed by examples of how critical realist methods (CR evaluation; CR action research; CR ethnography) may be of use for nursing research.

Four philosophical paradigms

Figure.1 outlines four commonly referenced philosophical paradigms and the associated components of research; methodology and methods of instrumentation (approaches to data). This paper focuses on PP realism with interpretivism, positivism and critical theory addressed elsewhere in Ryan (2017).

Figure 1 - summary of the four philosophical paradigms adapted from Wahyuni (2012), Lincoln et al (2011), Bryman (2008), Saunders et al (2009) and Guba & Lincoln (1994)

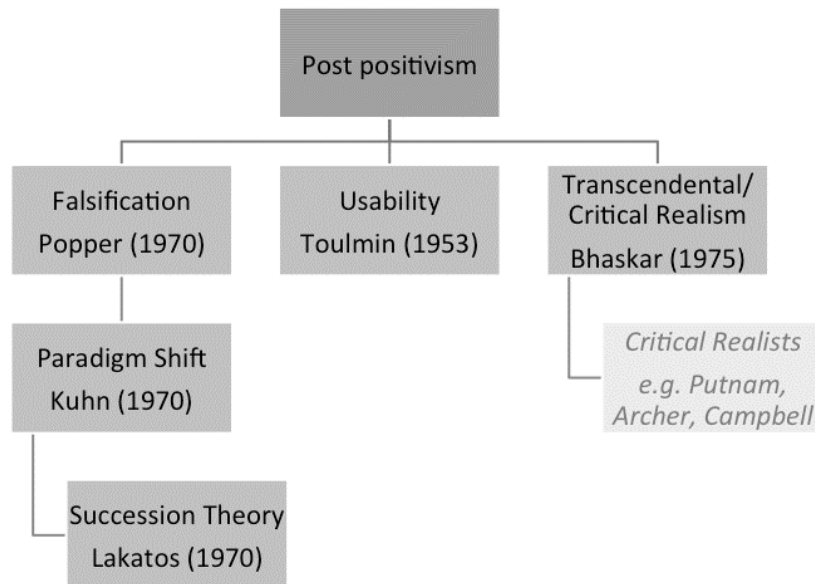


Post-positivism

PP sits on a spectrum between positivism and interpretivism (Phillips & Burbules, 2000).

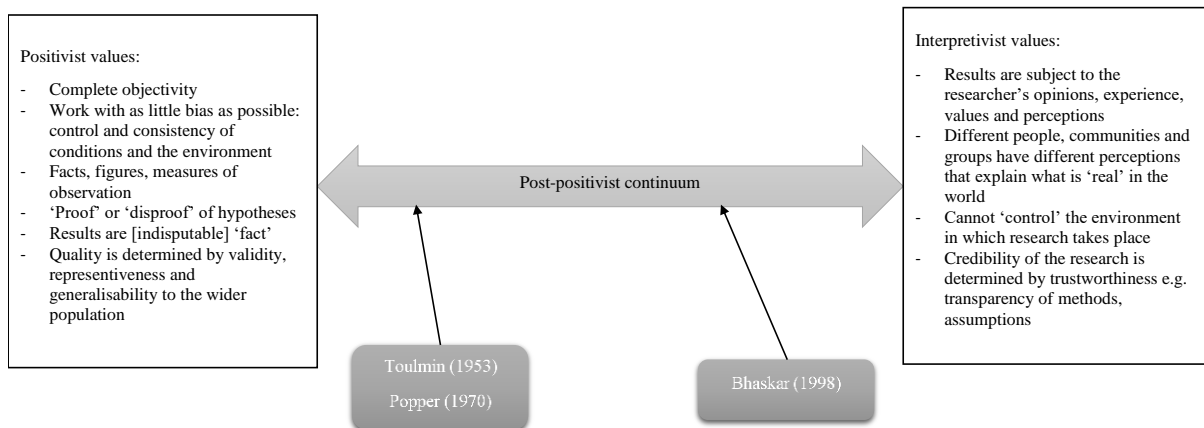
Some PPs value principles that are more closely situated with positivism (e.g. Toulmin, 1953 and Popper, 1970; 1994; figure 2) while others take on a more balanced approach, depending on the focus of research (Bhaskar, 1998).

Figure 2 - Historic context of post-positivism



Those more closely aligned to the positivist end of the spectrum may focus on quantitative, empirical research while those towards the interpretivist end may value qualitative and/or mixed methods research. Figure 3 illustrates the concept of this ‘spectrum’.

Figure 3 – the post-positivist continuum



PP should not be considered a progression of positivism neither is it anti-positivism. Post-positivism proposes an alternative approach to inquiry that seeks to resolve the polarity between interpretivism and positivism; accepting some of the strengths and rejecting the limitations (Howell, 2013).

Traditionally, PP is either rejected (or not even considered) in favour of positivist or interpretivist approaches, but the core principles of PP offer real value for nursing research and practice. Allowing for the complexities and individuality of patient care, building on and progressing knowledge as the context of practice changes (evidence-based practice) and facilitating *usable* and *transferable* knowledge for those delivering care (not just for researchers and academics). The principles of Bhaskar's (2008) CR alongside examples from nursing practice and research will be used to illustrate this argument.

Bhaskar's critical realism

Roy Bhaskar's (2008) transcendental realism [later termed critical realism] originated from Kant's philosophical question *what must be true in order for x to be possible?* There are six core principles.

i) The transitive and intransitive objects of science

In order to negotiate the conflicting views of positivism and interpretivism, Bhaskar proposed two dimensions of science. He argued that the production of knowledge in the human world always has a human element; science cannot exist without some form of human activity or inquiry (Danermark *et al*, 1997). These were identified as *intransitive* and *transitive* knowledge.

Intransitive knowledge refers to the objects that we study, these objects would exist whether humans exist or not, and regardless of human experimentation or observation; gravity, light do not need 'human observation' to exist in *reality* (Danermark *et al*, 1997). *Transitive* knowledge is the knowledge that we create as a result of human intervention or, that which

has a human factor (research that involves people, communities, groups). Rival or differing theories may be presented about the same object of study; different philosophical approaches, qualitative versus quantitative research methods (Collier, 1994; Howell, 2013). In essence, these need to be relevant, credible and usable in the environment for which they are intended. For example, when nursing a patient in the end of life, quantitative research could provide knowledge into the most effective methods to manage pain [from a physiological perspective]. Conversely, qualitative research is also important to facilitate the end of life process, not just for the patient but for their wider family and friends. A RCT or quantitative measures simply would not provide enough insight into the human *experience* of such a journey.

ii) Objects, events, structures, mechanisms, causal powers and tendencies

In order to discuss these, it is necessary to confirm what is meant by *causality* from the critical realist perspective. Danermark *et al* (1997 p52) suggest that causality traditionally refers to:

“an explanation of why what happens actually does happen”

In positivism the concept of establishing associations and cause-effect is viewed as important and, in the natural sciences where the objects of investigation would exist regardless of human intervention (e.g. gravity) there is a valid place for these. These types of investigations are based on measures of directly observable events, theoretical algorithms or experimental conditions; in nursing this can be likened to RCTs. For example, we assume that findings from repeated, high quality RCTs show that warfarin should be used to prevent atrial fibrillation (NICE, 2018) and this is the *best experimental evidence* we have at this time (Phillips & Burbules, 2000). The problem with this approach in research with biological, psychological, human and/or social factors is that ‘we are simply not that simple’. It explains

what we see but not ‘why’ it exists like that, ‘how’ we exist like that and ‘when’ we exist like that. For example, we cannot ever be one hundred percent sure that warfarin will always act in the same way or be as effective, for every patient in every circumstance and, this is also true of the previous end of life example. Thus, critical realism requires us to examine what happens, why, when and **in what circumstance?**

Objects of inquiry may be observed through *events* or *outcomes* and we can generate a ‘most likely’ explanation of reality based on these. For example, it is not necessarily possible to observe everything about a patient, for them to ‘tell us’ or for us to experience what a patient is experiencing. However, through a range of ‘methods’, observing behaviours, events and outcomes it may be possible to describe ‘what’ is happening, consider the explanatory reasons (theory) about ‘why’ this might be happening in this particular circumstance, and for that patient.

This concept is even more pertinent in research with a diverse range of human factors [such as nursing research]. Think about the concept of a ‘non-compliant’ patient; we can observe the *behaviours* of the patient and possibly their family/carers [*entities*], we can observe the *events* that take place during the patient journey. We know that as an individual with their own social status and background the patient will have *tendencies* [morals, values, beliefs or principles] that inform their behaviour. What these observations do not tell us is *why* this occurs and the underlying *structures* that create such behaviour. For example, socialisation and social norms; community or family culture; previous experiences of healthcare, nor does it tell us the *causal mechanisms* [the combination of all of these components and theory that might *explain* the context for this patient]; what can tell us why this patient is behaving the

way that they are? How can we use this information to help resolve the problem and improve the outcome?

iii) Reality is stratified

Bhaskar (2008) proposes three domains of reality; empirical, actual and real. What we observe in the empirical domain and what we critically examine, explain and theorise in the actual domain is what reflects the [unobservable] real domain. We can never know exactly what causal mechanisms exist in the real domain (we cannot possibly see ‘everything’). The *empirical* domain is where the objects under inquiry may be observed; this is as far as pure positivist research in healthcare will go. If conducting interpretivist research, this is where we would measure or record *experiences* through the process of inquiry.

The *actual* domain consists of *events* and *experiences*. Collier (1994) & Bhaskar (2008) state that this is the area where we begin to apply *causal laws* or *assumptions* that *might explain* the situation. What are the social norms? Why do they exist? Why might one patient behave in this manner but not in another? Why does this work for patient ‘X’ but not patient ‘Y’? The important factor here is that we consider these factors in relation to ‘the best available evidence and theory’ along with what has been observed.

iv) Truth is fallible

Fallibilism is the notion that all ‘facts’ can be proven incorrect, there is no certainty (Alvesson, 2009; Ryan, 2006; Phillips & Burbules, 2000). Elgin (1996) would argue that even the most rigorous empirical methods may occasionally fail to produce conclusions and, in some cases may produce undetected errors (e.g. type I and II errors) (Bannerjee *et al*, 2009; Bryman, 2008); the facts are *fallible*. Equally, just because an outcome is observed on multiple occasions does not mean that this outcome will *always* be observed; the only way to prove this is by observing every single event in every context throughout its existence and,

this is simply not possible. For example, RCTs and meta-analyses might show *significant* outcomes for patients. This does not mean that this is *verified fact*, it means that this is *most likely* to happen, but the outcome cannot be guaranteed for every patient in every circumstance. Conversely, new knowledge might *disprove* what was known before; the frequency and circumstances in which antibiotics used to be prescribed was far different how they are now, for example. This is also true of how nurses approach patient centred care and evidence-based practice; while the imperative is to be informed by *research evidence* (Polit & Beck, 2012), each *patient* is different, and our *expertise* and *experience* may allow us to respond to individual patient need. Conversely, it is not sufficient that a nurse cares for a patient based on having ‘seen hundreds of patients with this condition’ or because ‘we have always done it this way’ (Polit & Beck, 2012). Having extensive experience in nursing and the knowledge alongside it is inarguably valuable, but not *verified fact*.

v) Modified Objectivity

Post-positivists take the approach that knowledge [while fallible] should be obtained with the best available evidence at the time of inquiry. Other examples can be found in National Institute of Nursing Research, n.d.) (Phillips & Burbules, 2000). This means that post-positivists value *objectivity* but also recognise that this can never be completely achieved (Danermark *et al*, 1997). This notion of *modified objectivity* recognises that we can never completely control or remove external influence on social ‘objects’ [remove all ‘bias’], such as people, places and communities. Hence, it focuses on ‘controlling’ the factors we can and accepting those we cannot. For example, a nurse may never be able to approach a situation without their own background, values and assumptions but they may be ‘aware’ of these and how they might influence the situation.

This could be considered as *reflexivity*, and more appropriately aligned with interpretivist values (Bryman, 2008). The important differential between *modified objectivity* and interpretivist *subjectivity* is the PP approach to ‘what is real’ (epistemology). Interpretivists assert that there are **multiple realities** based on the different individuals/groups in a given context (relativism) (i.e. reality is defined by the person experiencing it; reality is changeable based on the individual/group) (Ryan, 2017), while post-positivists argue that there is **one reality** and that each social actor has their own perspective of it (realism) (i.e. reality is not ‘different’, the individual/group perspective of that one reality is). Hence, PP does not hold a relativist view of reality nor does it take the positivist epistemological perspective (naïve realism, logical realism, rationalism or foundationalism) (Ryan, 2017).

Realists assert whichever way findings are presented either objectively or subjectively, they are simply different ways of presenting a ‘single’ reality that exists whether we are observing it or not. Furthermore, there may be components of reality that exist which are not experienced or observable in their pure form, social structures for example. Philosophical conflict arises when one individual/group feel that their explanation of reality is more ‘real’ than the others. In critical realism, all of these views, previous evidence, previous theory and the possibility that structures may exist that cannot be seen (regardless of your perspective). It is in this way that CR values *modified objectivity*.

vi) Open and closed systems

Bhaskar (2008) proposes the concept of open and closed systems in which inquiry takes place. Closed systems are those which exist regardless of human interaction, those which can be completely controlled (e.g. a laboratory), open systems are those in which there is a human factor and contexts where there are uncontrollable factors.

Making use of PP-CR in nursing research

Critical realist evaluation

Ackroyd (2009) contends that much of existing social policy is based on received wisdom rather than research findings. In the context of healthcare where evidence based practice is of essence and where policy is regularly informed by national guidance, underpinned by research evidence, such as NICE.

Critical realist evaluation presents a clear and logical process of evaluation, to produce ‘evidence’ to inform policy and practice based on what works, for whom and in what circumstance. First proposed by Pawson & Tilley (1997), and informed by the post-positivist Bhaskar, they strongly argue for a realist approach to evaluation of sociological interventions, programmes and initiatives. For example, prevention of crime using CCTV. This approach to inquiry focuses on practical application of findings rather than inquiry for the sake of science. The *realistic* nature means that it seeks to inform the knowledge of stakeholders, practitioners, policy makers, the public and leaders involved in sociologic interventions and services. It examines the available evidence (this can be through critical appraisal) to explain ‘what works for whom and why’.

An example of this is given by Pawson & Tilley (1997: 204) when discussing a crime prevention program and works on the principle that there are *context*, *mechanisms* and *outcomes*:

Context + mechanism = outcome(s)

Context: Communities have low risk opportunities to commit crime

Mechanism: Situational measures to increase the risk and difficulty to commit crime.

Theories and interventions that change the way potential offenders see the utility of a crime.

Outcome: Reduced rate of attempted crime. More failed crime. Increased apprehension of offenders. Lower yield from crime for the offender.

Context refers to the situation, environment or object of study, *mechanisms* refer to the ‘causal powers of things’ (Bhaskar, 2008: 40), they are the components that exist within a social structure, context, culture or environment that sustain or create change. In the case of realist evaluation, these would be ‘intervention(s)’. The combination of context and mechanism(s) creates an *outcome* which may be observed and measured (de Souza, 2013). Taken as a whole these components *explain* what is happening, when, and [more importantly] why.

Critical realist evaluation could therefore be employed by nurse managers, policy makers, those in health promotion and public health roles to 1) appraise and evaluate current evidence for a ‘problem’ or topic and, 2) evaluate and explain what interventions work, for who and why [thus supporting evidence-based practice and decision making]. Rushmer *et al* (2014) provides an example of how this might be implemented.

Action research

Action research seeks to create change in the actions or practices of an individual, group or community; often as it is happening. Action research may consist of cycles that can flow one after the other to implement incremental improvement based on reflection of what has gone before (Herr & Anderson, 2005; Houston, 2010; Stringer, 2014).

The emphasis of action research is collaborative with all involved and inquiry should be done with and not to people, hence it is value laden and highly subjective rather than empirical. However, much like that of critical realist evaluation, action learning seeks to improve practice and knowledge of existing situations through taking action and learning by doing. In order for action learning to be viewed as credible the actions taken must be based on a theory (i.e. I have a theory about this and can explain why it works as it does) (McNiff & Whitehead, 2012) and so, relies heavily on 'self-diagnosis' of a situation. This makes it highly relevant locally but usually with limited transferability or generalizability elsewhere. Furthermore, the value-laden nature of action learning opens it to criticism from empiricists and in areas of work where there is not consensus about basic aims for improvement or philosophical approach (Herr & Anderson, 2005).

Westthorp *et al* (2016) presents a critical realist action research study where multiple action research cycles were used to examine new models of service delivery for welfare funding for disadvantaged communities in Australia. This project aimed to understand the interventions that may work but also to explain the behaviours and values of these communities. The benefits of this approach enabled a rapid evaluation and explanation of underlying factors to behaviours, what interventions work and why they work. Hence, critical realist action research could be effectively employed for localised, practice related projects seeking to improve quality, productivity and/or efficiency.

Ethnography

Ethnography has many proposed definitions as a result of its historic context and development across many perspectives. Atkinson (2001: 4) suggests that ethnographers are:

“grounded in a commitment to the first-hand experience and exploration of a particular social or cultural setting on the basis of (though not exclusively by) participant observation.”

Ethnography has often been the preferred method of inquiry for post-positivist realists such as Hammersley (1992), Porter (1993), Porter & Ryan (1996) and Barron (2013).

One of the most referenced realist ethnographies in nursing is Porter (1993). In this study, covert observation (observation without informing participants they are being observed) was used to examine the relationships between racism and professionalism in a healthcare team with a focus on medical staff and nurses. This resulted in an explanation of how racism may impact on occupational relationships and therefore, the function of a multi-disciplinary team from diverse backgrounds.

The use of critical realist ethnographic study (rather than more descriptive ‘traditional’ ethnography) can effectively provide *explanation* of nursing practice and consequently, facilitate intervention and action to resolve these practice related issues. The emphasis is on the *application* and *usability* of the knowledge in the practice context.

Conclusion

This discussion provides a much-needed knowledge base on the influencers and principles of post-positivism, it illustrates where, how and why these principles might align with nursing research and practice. By providing examples of how such principles have been used in various research studies and signposting to resources that might aid in the design and conduct of similar research, it forms the starting point for nurse researchers to feasibly consider the benefits and methods of post-positivist, critical realist research for nursing and healthcare

practice. With much of nursing practice and research sharing traits with it already and, rather than being rejected in favour of interpretivist or positivist approaches, PP-CR should be more seriously considered as a valid philosophical approach for nursing research.

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